

CLAIMS

What Is Claimed Is:

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- 1. A method for optimizing network resources in an ATM network comprising the steps of:
- (a) determining whether a channel identifier ("CID") is available on a direct virtual connection channel ("VCC") in response to a connection request;
- (b) if a CID is available, then determining if bandwidth is available on the direct VCC; and
- (c) if bandwidth is available on the direct VCC, then setting up an AAL2 connection on the direct VCC.
- 2. The method of claim 1 further comprising the step of:
- (b1) setting up a new direct VCC to a destination if bandwidth is not available on the direct VCC,

wherein step (b1) is executed after step (b) and before step (c).

- 3. A method for optimizing network resources in an ATM network, wherein the ATM network is formed from a plurality of interconnected network nodes, the method comprising the steps of:
- (a) determining whether a channel identifier ("CID") is available on an indirect virtual connection channel ("VCC");
- (b) if the indirect VCC does not have an available CID, then checking all existing indirect VCCs for an available CID;
- (c) if the indirect VCC has an available CID, then determining if bandwidth is available on the indirect VCC;
- (d) if the indirect VCC does not have bandwidth available, then modifying the bandwidth on the indirect VCC; and
- (e) if bandwidth is available on the indirect VCC, then setting up an AAL2 connection on the indirect VCC.
- 4. The method of claim 3 further comprising the steps of:
 - (d1) setting up at least one new indirect VCC to a destination if bandwidth is not

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available on any indirect VCCs,

wherein step (d1) is executed after step (d) and before step (e).

- 5. The method of step 4, wherein the at least one new indirect VCC is setup according to a routing table.
- 6. A communication network comprising:

a plurality of ATM nodes;

a plurality of direct virtual connection channels ("VCC"), wherein each direct VCC connects one of the plurality of ATM nodes to a different one of the plurality of ATM nodes; means for determining whether a channel identifier ("CID") is available on a direct VCC;

means for determining if bandwidth is available on the direct VCC; and means for setting up an AAL2 connection on the direct VCC.

- 7. The communication network of claim 6, further comprising means for setting up a new direct VCC to a destination.
- 8. A communication network comprising:

a plurality of ATM nodes;

a plurality of indirect virtual connection channels ("VCC"), wherein each indirect VCC connects one of the plurality of ATM nodes to a different one of the plurality of ATM nodes;

means for determining whether a channel identifier ("CID") is available on an indirect VCC;

means for checking all existing indirect VCCs for an available CID; means for determining if bandwidth is available on the indirect VCC; means for modifying the bandwidth on the indirect VCC; and means for setting up an AAL2 connection on the indirect VCC.

- 9. The communication network of claim 8, further comprising means for setting up at least one new indirect VCC.
- 10. An ATM node comprising:

means for connecting to at least one other ATM node, the connecting means establishing a virtual connection channel ("VCC") between the ATM node and the at least one other ATM node;

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means for determining whether a channel identifier ("CID") is available on the VCC; means for modifying the bandwidth on the VCC; and means for setting up an AAL2 connection on the VCC.

11. The ATM node of claim 10, further comprising means for setting up at least one new indirect VCC.